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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/882,096	06/15/2001	Brian E. Joseph	1474(Touchstone)	7698

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EXAMINER

VO, HAI

ART UNIT PAPER NUMBER

1771

DATE MAILED: 01/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/882,096

Applicant(s)

JOSEPH ET AL.

Examiner

Hai Vo

Art Unit

1771

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-20 is/are pending in the application.
- 4a) Of the above claim(s) 4 and 13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2, 3, 5-12 and 14-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Claim Objections

1. Claim 10 is objected to because of the following informalities: it appears that a micro, multi-void is defined as those produced in widths from a few millimeters up to several inches. The examiner suggests that such a definition should be included in the claim in order to make the claim clear and in light with the specification. Appropriate correction is required.

Election/Restrictions

2. Applicant's election with traverse of claims 1-3, 5-12 and 14-18 in the amendment filed on 10/07/2003 is acknowledged. The restriction has been made final in the Office Action mailed on 12/19/02.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 2, 3, 5, 10-12, 14, and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Ponnappan et al (US 6,293,333). Ponnappan teaches a micro channel heat pipe comprising a housing 12 and a wick 14 of a mesh copper screen cloth being inserted in the housing (figure 1). The wick is retained within the housing by a slight shrink fit (column 4, lines 29-30). The wick contains capillary channels

and micropores to provide heat transfer effectiveness (column 4, lines 20-25, 56-57).

The micro capillary channels are formed in the wire cloth by extrusion techniques (column 4, lines 13-15). Likewise, the wick comprises an extrusion as presently claimed. It is the examiner's position that Ponnappan anticipates the claimed subject matter.

5. Claims 2, 3, 6-8, 10-12, 15-17, 19 and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Joshi et al (US 2002/0179284 A1). Joshi teaches a thermosyphon comprising a cover plate 26 made of aluminum silicon carbide and a boiling enhancement structure 34 attached to the cover plate ([0032] and [0039] and figure 1). The boiling enhancement structure 34 includes a plurality of continuous, parallel channels fabricated from copper or open celled aluminum foam ([0039], [0042]). It is the examiner's position that Joshi anticipates the claimed subject matter.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 6, 7, 15, 16 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ponnappan et al (US 6,293,333) as applied to claim 2 above, further in view of Glass et al (US 5,720,339). Ponnappan is silent as to the housing of the heat pipe being made of a metal matrix composite. Glass teaches a thermal

protection system containing heat pipes embedded in a composite material (figure 6). Glass discloses the composite material fabricated from a metal matrix composite to protect the heat pipes from oxidation because the heat pipes will be directly exposed to oxygen (column 13, lines 15-20, 30-35), which is important to the expectation of successfully practicing the invention of Ponnappan, thus suggesting the modification. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the metal matrix composite as the housing of the heat pipe motivated by the desire to protect the heat pipes from oxidation because the heat pipes will be directly exposed to oxygen.

8. Claims 5 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Joshi et al (US 2002/0179284 A1). Joshi does not specifically disclose the boiling enhancement structure with channels made by extrusion technique. However, it is the product-by-process limitations. It is the examiner's position that the article of Joshi is identical to or only slightly different than the claimed article prepared by the method of the claim, because both articles are formed from the same materials, having structural similarity (a micro, multi-void core made of aluminum having two planar surfaces and including plurality of micro-channels and at least one layer of an aluminum matrix composite attached to the core). Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or an obvious from a product of the prior art, the claim is unpatentable even though

the prior product was made by a different process. *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985). The burden has been shifted to the applicant to show unobvious differences between the claimed product and the prior art product. *In re Marosi*, 218 USPQ 289,291 (Fed. Cir. 1983). It is noted that if the applicant intends to rely on Examples in the specification or in a submitted Declaration to show non-obviousness, the applicant should clearly state how the Examples of the present invention are commensurate in scope with the claims and how the Comparative Examples are commensurate in scope with Joshi.

9. Claims 9 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Joshi et al (US 2002/0179284 A1) as evidenced by Towata et al (US 6,245,442). Joshi discloses the cover plate of the thermosyphon made of the aluminum metal matrix composite; however, Joshi is silent as to the use of ceramic particles in the aluminum metal matrix composite of the cover plate. Towata is relied on as evidence that teaches the metal matrix composite casting useful as an electrical part for a heat exchanger comprising reinforcing ceramic particles motivated by the desire to provide the metal matrix composite having higher heat conductivity and excellent heat dissipation (column 8, lines 58-59), which is important to the expectation of successfully practicing invention of Joshi and thus suggesting the modification. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include the reinforcing ceramic particles in the metal matrix composite of the cover plate in the Joshi reference motivated by the desire to

provide the metal matrix composite having higher heat conductivity and excellent heat dissipation.

Response to Arguments

10. The art rejections in the Office Action mailed on 12/19/2003 have been overcome by the present amendment and response.
11. Applicant's arguments with respect to claims 2, 3, 5-12, and 14-20 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai Vo whose telephone number is (571) 272-1485. The examiner can normally be reached on M,T,Th, F, 7:00-4:30 and on alternating Wednesdays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571) 272-1478. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-0994.

Hai Vo
Tc 1700